

The above diagram illustrates the virtual network environments. Virtual Network Environment 1 contains one application WEB SITE 1, is defined by the Virtual Network Address 10.10.0.1 resides solely on computer 1. Virtual Network Environment 2 contains two applications, WEB SITE 2 and APP 2, and spans two computers, Computer 2 and Computer 3. The virtual network of VNE 2 is 10.10.2.0.

Fig. 1

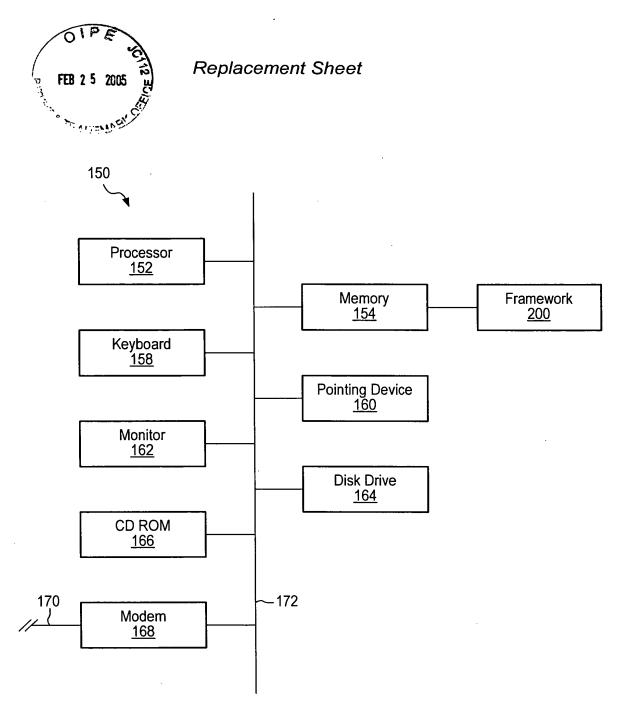
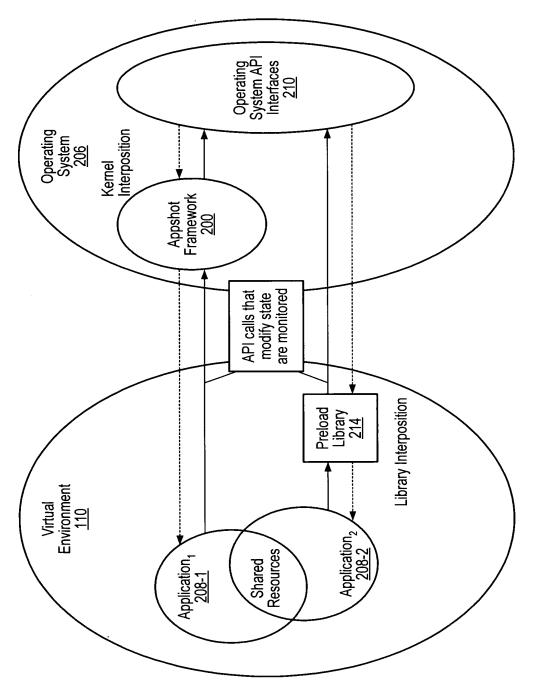
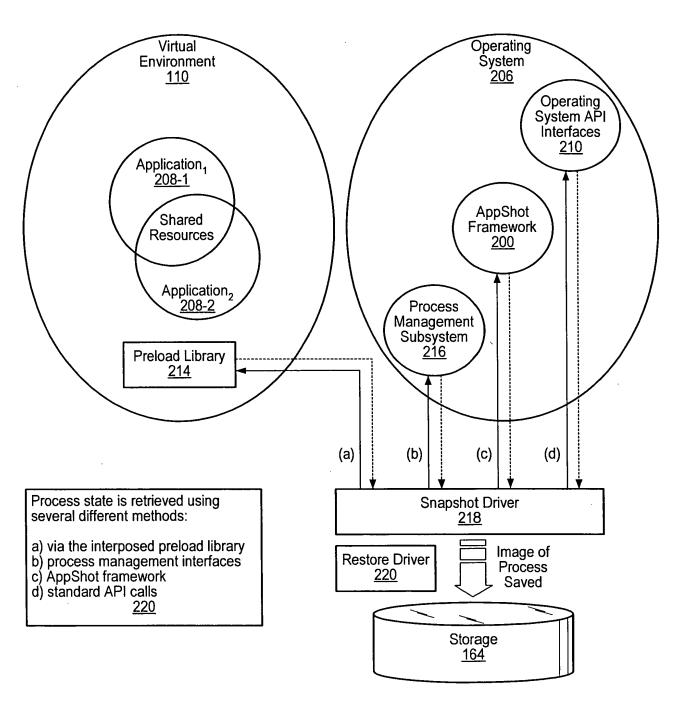


Fig. 2



Tracking application state via library and kernel interposition.

Fig. 3



Capture of an application's run-time state.

Fig. 4

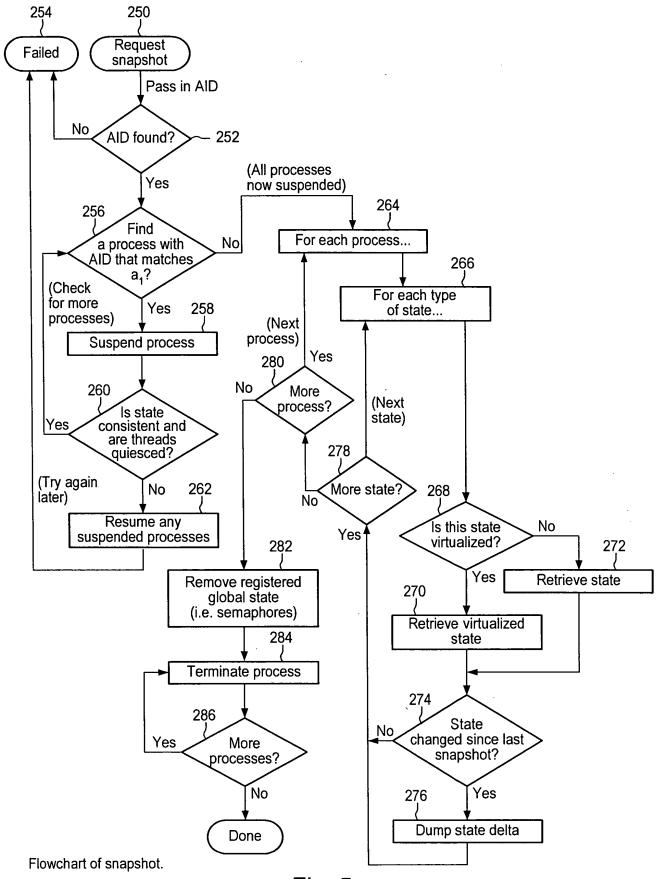


Fig. 5

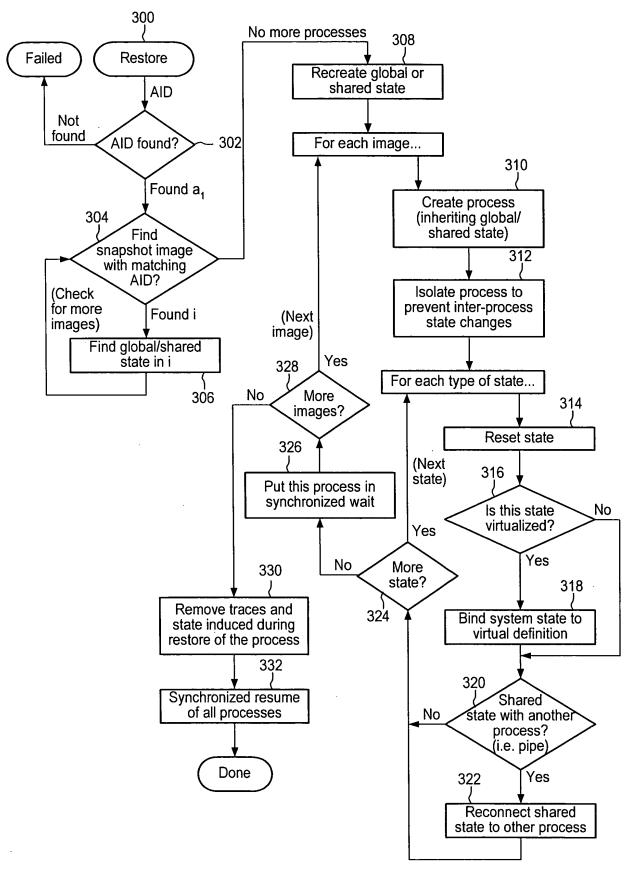


Fig. 6

| Resource Name              |  | e Size                   |  |
|----------------------------|--|--------------------------|--|
| Resource Descriptor Size   |  |                          |  |
| Resource Type              |  |                          |  |
| Resource Name              |  | 9                        |  |
| Resource Data              |  |                          |  |
| <u> </u>                   |  |                          |  |
|                            |  |                          |  |
| Alarm Info                 |  | Semaphore Info           |  |
| File Info                  |  | Platform Name            |  |
| Signal Info                |  | Data Queued Info         |  |
| Current Directory          |  | Process Status           |  |
|                            |  |                          |  |
| Application Virt ID        |  | Credentials Info         |  |
| Application Virt Net Mask  |  | File Locking Info        |  |
| Dynamic Symbolic Link Info |  | M Map Memory Info        |  |
| Resource Limit Info        |  | Process Map Info         |  |
| Process Info               |  | Schedule Control Info    |  |
| Snapshot Info              |  | Lightweight Process Info |  |

Fig. 7

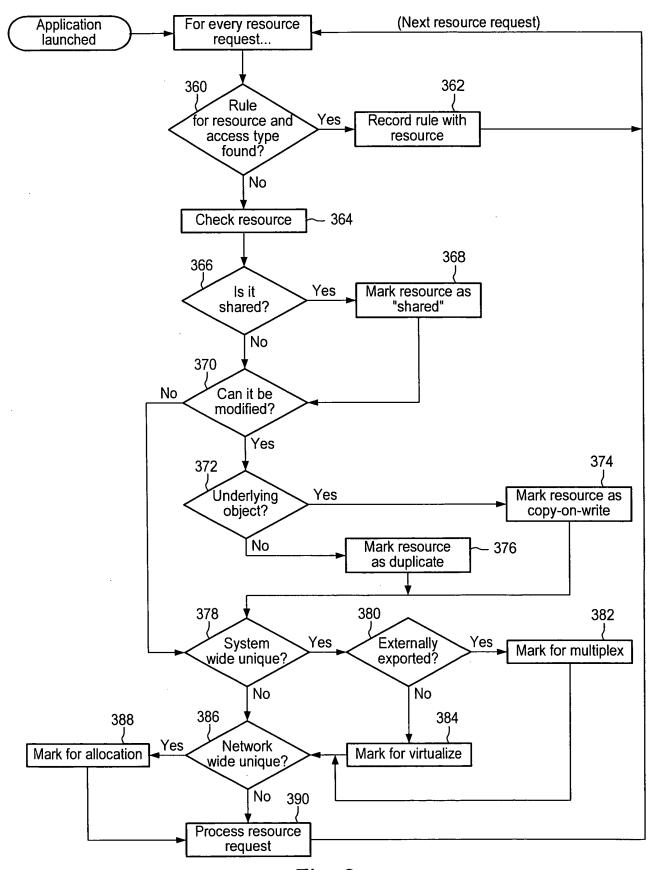
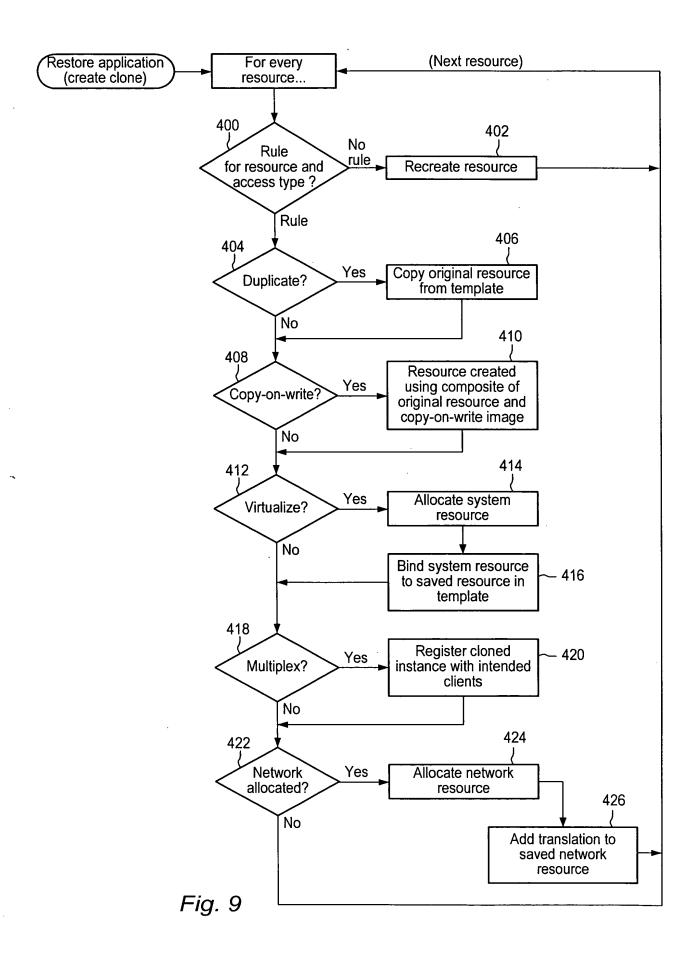
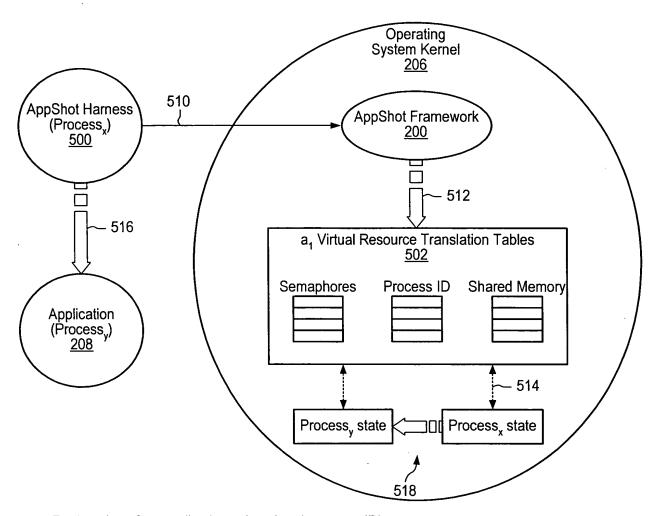


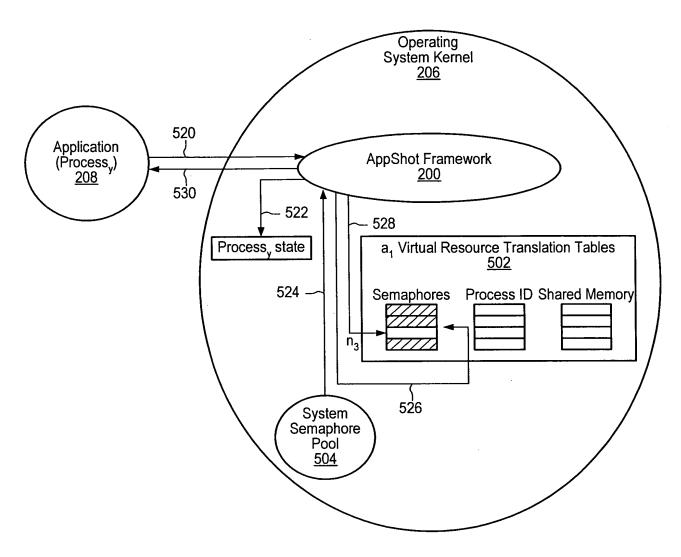
Fig. 8





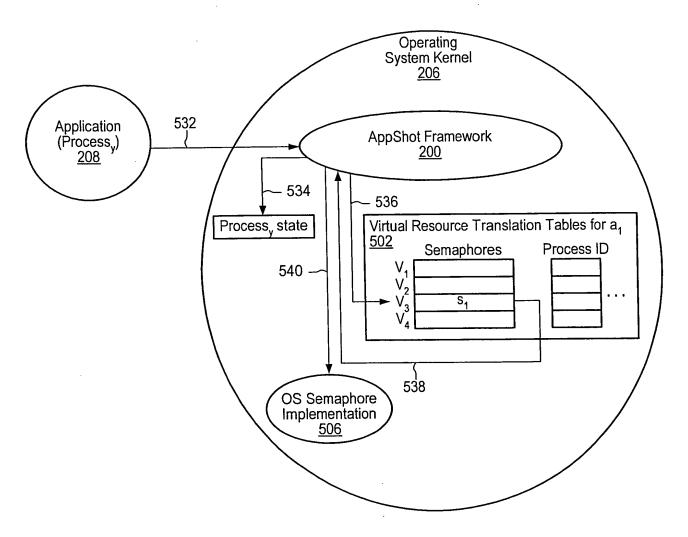
Registration of an application using virtual resource ID's

Fig. 10



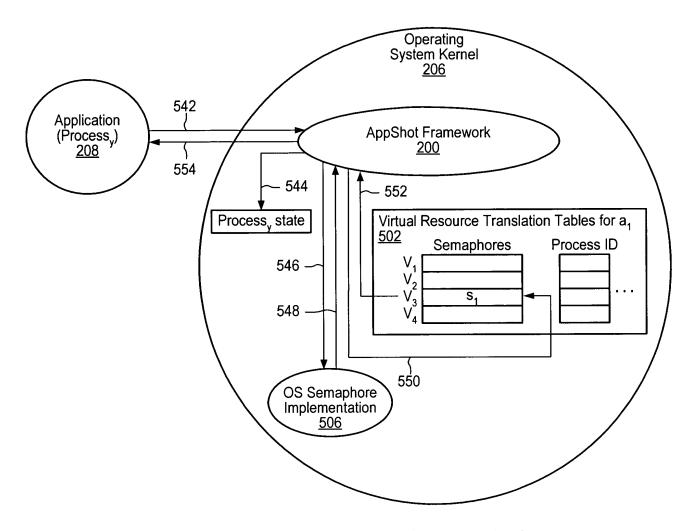
Allocation of a virtual resource (i.e. semaphore)

Fig. 11



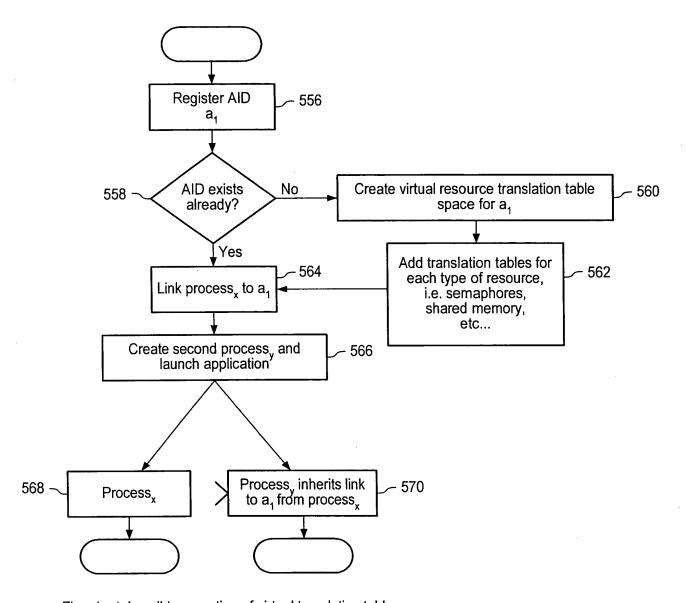
Translation of a virtual resource (i.e. semaphore), virtual to system

Fig. 12



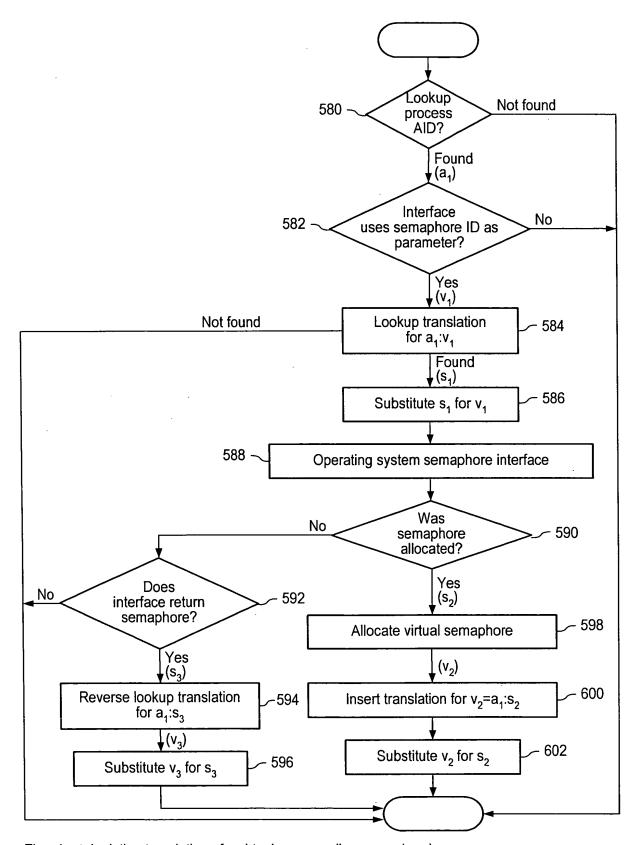
Reverse Translation of a virtual resource (i.e. semaphore), system to virtual

Fig. 13



Flowchart describing creation of virtual translation tables

Fig. 14



Flowchart depicting translation of a virtual resource (i.e. semaphore)

Fig. 15

